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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/066,760 | 02/06/2002 | Yoichi Iihoshi | 381AS/49702DV | 8415 |

7590 12/27/2002

CROWELL & MORING LLP
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EXAMINER

NGUYEN, TU MINH

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

3748

DATE MAILED: 12/27/2002

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/066,760

Applicant(s)
Iihoshi et al.

Examiner
Tu M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Dec 10, 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-10 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7, 8, and 10 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on Dec 10, 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/793,402.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

1. An Applicant's Amendment filed on December 10, 2002 has been entered.
Claim 7 has been amended. Overall, claims 7-10 are pending in this application.

Drawings

2. The amended Figure 12 filed on December 10, 2002 have been approved for entry. Upon allowance of the pending application, formal drawing of Figure 12 with the approved changes must be submitted.

Specification

3. The disclosure is objected to because on page 8, line 11, "burring" should be --burning--.
Appropriate correction is required.

Claim Objections

4. Claims 8-10 are objected to because of the following informalities:
 - Claims 8 and 9, line 7 of each claim, "the" should read --a--.
 - Claim 10, line 7 of the claim, "high than the" should read --higher than a--.Appropriate correction is required.

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Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless --

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claims 7, 8, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaneko et al. (U.S. Patent 6,041,591).

Re claim 7, as shown in Figures 3 and 10-12, Kaneko et al. disclose an exhaust control system for a cylinder fuel injection engine comprising cylinder injection injectors (8) for directly injecting fuel into combustion chambers (1) and a catalytic converter (9) provided in an exhaust passage (3) from the combustion chambers for purifying an exhaust gas,

wherein at least one time of auxiliary fuel injection is performed at a timing from expansion stroke to exhaust stroke after a primary injection in which a primary fuel is injected for obtaining an output of the engine, the primary fuel injection occurring before a timing of a spark ignition in a cylinder and the auxiliary fuel injection occurs in a cylinder in a predetermined period to increase concentration of carbon monoxide and hydrocarbon in the exhaust gas (according to

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Figure 11 and lines 11-21 of column 28, only cylinder #1 receives an auxiliary injection at the end of expansion stroke or during an exhaust stroke to increase HC and CO concentrations in the exhaust gas (also see lines 16-42 of column 26)), and

wherein a cylinder having no auxiliary fuel injection is operated with lean mixture and supplies surplus oxygen to the exhaust gas (according to Figure 11, cylinders #2-#4 have no auxiliary fuel injection and are operated lean to supply excess oxygen to the exhaust gas).

Re claim 8, the exhaust control system of Kaneko et al. includes a catalytic converter temperature measuring means (26) for measuring a temperature of the catalytic converter for making a period of auxiliary injection longer when the temperature of the catalytic converter is lower than a predetermined value (θ_0) (see Figure 17(B) and lines 9-36 of column 19). *← lines 13-21, col. 20*

Re claim 10, the exhaust control system of Kaneko et al. includes a catalytic converter temperature measuring means (26) for measuring a temperature of the catalytic converter for retarding timing of the auxiliary injection when the temperature of the catalytic converter is higher than a predetermined value (θ_0) (the auxiliary injection is delayed to be performed in the exhaust stroke when the catalyst temperature exceeds θ_0 and when the engine is brought into an idling or decelerated state in which the catalyst temperature is expected to drop below θ_0 (see lines 16-36 of column 26)).

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7. Claim 7 is further rejected under 35 U.S.C. 102(e) as being anticipated by Sebastiano et al. (U.S. Patent 5,956,942).

As shown in Figures 1-2, Sebastiano et al. disclose an exhaust control system for a cylinder fuel injection engine comprising cylinder injection injectors (10) for directly injecting fuel into combustion chambers (11) and a catalytic converter (18) provided in an exhaust passage (17) from the combustion chambers for purifying an exhaust gas,

wherein at least one time of auxiliary fuel injection is performed at a timing from expansion stroke to exhaust stroke after a primary injection in which a primary fuel is injected for obtaining an output of the engine, the primary fuel injection occurring before a timing of a spark ignition in a cylinder and the auxiliary fuel injection occurs in a cylinder in a predetermined period to increase concentration of carbon monoxide and hydrocarbon in the exhaust gas (see the Abstract), and

wherein a cylinder having no auxiliary fuel injection is operated with lean mixture and supplies surplus oxygen to the exhaust gas (according to lines 23-28 of column 3, the auxiliary injection is alternated from one cylinder to another at successive cycles).

Allowable Subject Matter

8. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if amended to overcome claim objection and rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Response to Arguments

9. Applicant's arguments with respect to the references applied in the previous Office Action have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Communication

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (703) 308-2833.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (703) 308-2623. The fax phone number for this group is (703) 308-7763.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1148.

Tu M. Nguyen

TMN

Tu M. Nguyen

December 23, 2002

Patent Examiner

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